

TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference P TM81181 PC-BU | FOR FURTHER ACTION | See Form PCT/IPEA/416 |
| International application No. PCT/DE2004/002715 | International filing date (<i>day/month/year</i>) 10.12.2004 | Priority date (<i>day/month/year</i>) 11.12.2003 |
| International Patent Classification (IPC) or national classification and IPC H03K17/16 | | |
| Applicant CONTI TEMIC MICROELECTRONIC GMBH | | |

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| 1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. |
| 2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet. |
| 3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions). |
| 4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application |

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| Date of submission of the demand | Date of completion of this report |
| Name and mailing address of the IPEA/EP | Authorized officer |
| Facsimile No. | Telephone No. |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-9 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- nos. 1-18 as originally filed/furnished
- nos.* _____ as amended (together with any statement) under Article 19
- nos.* _____ received by this Authority on _____
- nos.* _____ received by this Authority on _____
- ☒ the drawings:
- sheets 1/8-8/8 as originally filed/furnished
- sheets* _____ received by this Authority on _____
- sheets* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages _____
- ☐ the claims, nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | |
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| 1. | Statement | | |
| | Novelty (N) | Claims 3-16 | YES |
| | | Claims 1-2, 17-18 | NO |
| | Inventive step (IS) | Claims 3-16 | YES |
| | | Claims 1-2, 17-18 | NO |
| | Industrial applicability (IA) | Claims 1-18 | YES |
| | | Claims | NO |
| 2. | Citations and explanations (Rule 70.7) | | |
| | <p>The invention concerns a method for controlling a load element by means of an electronic switching element. The aim of the invention is to minimise electromagnetic interference which may occur when switching the load.</p> | | |
| 1. | INDEPENDENT METHOD CLAIM 1 | | |
| | <p>The closest prior art is US 2001/040470 A1 (D1), which in figure 2 shows a method for controlling a load element having the features of independent method claim 1:</p> <ul style="list-style-type: none"> - by means of an electronic switching element in the load current circuit (D1, fig. 1, Ref. T), wherein - the voltage at the load element is controlled with a maximum predefined increase (D1, fig. 1, Ref. "Control Circuit" and current sources K1 to K4) and - the momentary occurring power loss is determined several times during the switching procedure (D1, fig. 1, Ref. "Control Circuit" taps Vd and Id') and the momentary increase | | |

| Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
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| | <p>is controlled as a function thereof (D1, fig. 1, Ref. "Control Circuit" controls current sources K1 to K4).</p> <p>The present application does not meet the requirements of PCT Article 33(1) because the subject matter of claim 1 lacks novelty (PCT Article 33(2)).</p> <p>DEPENDENT CLAIMS 2, 17, 18</p> <p>Dependent claims 2, 17 and 18 do not contain any features which, in combination with the features of any claim to which they refer, meet the PCT requirements for novelty and inventive step.</p> <p>DEPENDENT CLAIMS 3-11</p> <p>The combination of features contained in dependent claims 3-11 is neither disclosed nor suggested by the available prior art (see 5.1).</p> <p>2. INDEPENDENT DEVICE CLAIM 12</p> <p>Document D1 is considered the closest prior art and discloses (the references between parentheses refer to that document):</p> <p>a switching arrangement for controlling a load element by means of an electronic switching element in the load current circuit (D1, fig. 1).</p> |

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| | <p>The subject matter of independent claim 12 differs therefrom in that:</p> <p>the voltage at the load output is controlled in three phases with limited increase.</p> <p>The subject matter of claim 12 is thus novel and inventive (PCT Article 33). The application solves the problem of limiting the rate of current change of the control current of the switching element during the switching procedure with the help of the three phases such that the switching speed is rapid enough and the generation of electromagnetic interference voltage is minimal.</p> <p>Claims 13-16 are dependent on claim 12 and therefore likewise meet the PCT requirements for novelty and inventive step.</p> <p>3. The current claim 12 starts with a back reference to the method according to one of the preceding claims. In addition, the sentence in line 5 of page 9 is incomplete and was not taken into consideration in the drafting of this report.</p> <p>4. The subject matter of the application is clearly industrially applicable.</p> |